

Exhibit A

Part 3 of 5

COPY OF TRANSCRIPT

VOLUME II, PAGE 228
IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

AGERE SYSTEMS, INC., CYTEC
INDUSTRIES, INC., FORD MOTOR
COMPANY, SPS TECHNOLOGIES LLC
and TI GROUP AUTOMOTIVE SYSTEMS
LLC

Plaintiffs

V

CIVIL ACTION NO.
02-CV-3830 (LDD)

ADVANCED ENVIRONMENTAL
TECHNOLOGY CORPORATION, ET AL.
Defendants

Oral deposition of JAY
VANDEVEN, taken at the law offices of
Ballard Spahr, Andrews & Ingersoll,
LLP, 1735 Market Street, 42nd Floor,
Philadelphia, Pennsylvania, on
Wednesday, February 14, 2007, at
9:34 a.m., before Jennifer Bermudez,
a Registered Professional Reporter,
and Notary Public, pursuant to
notice.



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JAY VANDEVEN

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MARKED

VANDEVEN

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1 JAY VANDEVEN, having been
2 previously duly sworn, was examined
3 and testified as follows:

4 EXAMINATION (CONT'D)

5 BY MR. PETTIT:

6 Q. Good morning,
7 Mr. Vandeven.

8 A. Good morning.

9 Q. Let me cover just a couple
10 things that we talked about yesterday
11 as follow-up.

12 When you testified about
13 your role at Boarhead when you were
14 working for CHM2 HILL, you referenced
15 a woman who was a site manager at the
16 time. Am I right?

17 A. Just quickly, it's CH2M
18 HILL. I know it's complicated. I
19 think I said that in reference to a
20 question about whether or not I was
21 the site manager, I said I believe
22 the site manager was a woman in
23 Philadelphia.

24 And I believe her name was



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1 Donna Connery or Donna O'Connery,
2 something like that.

3 Q. Donna Connery is listed for
4 the work plan and for the remedial
5 investigation. Are you familiar with
6 her?

7 A. I recall her briefly, but I
8 don't --

9 Q. Do you know anything about
10 her experience or qualifications?

11 A. No, I don't.

12 Q. There's also a field
13 geologist identified in the work
14 plan, Annette Mario. Do you know
15 her?

16 A. No, I do not.

17 Q. And then a Jack Dingleline
18 was indicated as doing the ecological
19 assessment.

20 A. I'm sure I would have
21 remembered him, but no, I don't
22 remember him.

23 Q. Given your experience with
24 CH2M HILL -- did I get that right?



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1 A. That's correct.

2 Q. -- do you have any reason
3 to doubt that company's ability to
4 develop the RI/FS work plan in a way
5 consistent with the EPA directive?

6 A. I have none whatsoever.

7 Q. And how about the company's
8 ability to perform the remedial
9 investigation and feasibility study,
10 do you have any reason to doubt their
11 competency or ability to follow EPA
12 directives in that area?

13 A. Not at all.

14 Q. We talked yesterday about
15 mobilization of metals, and I asked
16 you question about the corrosive
17 wastes without substantial quantities
18 of metals?

19 And I think your testimony
20 was that once that waste mobilized
21 metals already in the soil that those
22 metals remained in the groundwater
23 for all time. Am I correct about
24 that?



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1 A. I don't believe I said for
2 all time.

3 Q. Okay. Well, I think you
4 said they would not return to the
5 soil even if the conditions of the
6 groundwater changed. Do I have that
7 right?

8 A. Well, what would happen is
9 once they became mobilized, then they
10 would dissolve into the groundwater
11 and then other chemical -- physical
12 chemical interactions may take place
13 which could affect the behavior of
14 those metals.

15 They may become bound up
16 again to soil down gradient, they may
17 stay dissolved in the groundwater.

18 It's a very complex
19 process, and there will be some kind
20 of equilibrium reached at some point,
21 but they will continue to say adsorb
22 to soil, desorb and then move down to
23 gradient.

24 Q. Okay, then I had that



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1 wrong.

2 With respect to the acid
3 wastes that contain substantial
4 quantities of metal, would the same
5 hold true with respect to the
6 mobility of metals and the fact along
7 the site they may reabsorb or
8 deabsorb depending on the conditions
9 of the soil?

10 A. Just to clarify, are you
11 talking about the metals that were in
12 the wastes or the metals that were in
13 the ground?

14 Q. I was going to ask you
15 about both. First about the metals
16 that are already in the waste, not in
17 the soil.

18 A. They would go through the
19 same -- similar processes. They
20 would be largely dissolved in that
21 acid waste.

22 And as they -- if that was
23 disposed of on the ground, as the
24 acid waste dispersed in the ground



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1 and encountered some of the buffering
2 capacity of the soil, the metals in
3 the acid waste may interact and
4 become less mobile in the subsurface.

5 As far as the metals that
6 were already in the ground or metals
7 that were already in waste in the
8 ground, similar processes, they would
9 be dissolved in the acid waste and
10 then move down gradient and interact
11 with the soil and groundwater in a
12 way that would -- some of it would be
13 immobilized, some of it would
14 continue on as dissolved metals.

15 (Vandeven Exhibit 13 was
16 marked for identification.)

17 BY MR. PETTIT:

18 Q. Now, I'm going to hand you
19 what's been marked as Vandeven-13.

20 MR. PETTIT: For the folks
21 on the phone, this is a section from
22 the remedial investigation report,
23 Pages 5-1 to 5-5.

24 MS. FLAX: You said the



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1 remedial investigation report?

2 MR. PETTIT: Yes.

3 MS. FLAX: Thank you.

4 BY MR. PETTIT:

5 Q. Mr. Vandeven, if you would
6 turn to Page 5-4, and specifically
7 the third full paragraph and the last
8 sentence of that paragraph that
9 starts "The effects of acid spills."
10 I will just give you a moment to read
11 that.

12 A. Okay.

13 Q. Do you agree with that
14 statement?

15 A. I'm not sure what the
16 context is that they are discussing
17 this in. I would have to look at
18 more of this text, probably, to
19 determine what the context of this
20 is.

21 It sounds like they are
22 saying that the area over which acid
23 spills could mobilize metals would
24 have been contained or not very



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1 large.

2 Q. Okay. Do you agree with
3 that part of it?

4 A. In general, that could be
5 the case. It would depend on the
6 site-specific conditions.

7 But, again, I think what
8 they are referring to is you would
9 have an area where if you had an acid
10 spill as they are talking about here,
11 the area over which it would mobilize
12 those metals may be contained or
13 finite, but then the metals would
14 continue to -- those dissolved metals
15 would continue to migrate down
16 gradient if they reached the
17 groundwater.

18 Q. And consistent with what
19 you testified to earlier this
20 morning, that would depend on site
21 conditions all the way along the path
22 of the groundwater. Am I right?

23 A. That's correct.

24 Q. If you would turn to the



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1 top of the next page, 5-5, the
2 paragraph that's continuing in the
3 last sentence, the "acids disposed of
4 at the surface probably destroyed
5 microorganisms." Do you see that?

6 A. Yes.

7 Q. Am I right, this focuses on
8 not only that effect being localized
9 but short-lived. Do you agree with
10 that statement?

11 A. I'm not sure what they mean
12 by short-lived. I think that
13 localized in their aerial
14 distributions is consistent with what
15 we just discussed.

16 And then the first sentence
17 that you read, "Acids disposed of at
18 the surface probably destroyed
19 microorganisms in the subsurface,
20 thereby reducing the extent of
21 biodegradation" is consistent with
22 what we talked about yesterday, the
23 fact that acid spills could destroy
24 the microorganisms and therefore the



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1 degradation that you could get of
2 organic compounds like TCE would have
3 been reduced.

4 Again, the second sentence
5 there, the last sentence in that
6 paragraph, again it would depend on
7 when they say the effects of acid
8 disposal, it would really -- in
9 general that statement may be
10 correct, but it would depend on the
11 volume of the acid spill, the type of
12 acid, how strong that acid was.

13 So there would be a lot of
14 other factors that you would have to
15 look at for an individual acid spill
16 or acid disposal.

17 Q. Now, in connection with the
18 preparation of your report, did you
19 review any information that was
20 specific for those factors with
21 respect to the Boarhead site?

22 A. I don't believe so, no.

23 Q. With respect to the
24 destruction of microorganisms being



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1 short-lived, is it accurate to say
2 that the microorganisms if destroyed
3 would be regenerated by natural
4 processes?

5 MR. HARRIS: Object to the
6 form. I'm not sure that's what this
7 says.

8 THE WITNESS: I'm not sure
9 from this that they are connecting
10 that second-to-last sentence with the
11 last sentence.

12 I'm not sure that they are
13 saying that particular effect, which
14 is the destruction of microorganisms
15 which is short-lived.

16 In general, once you
17 destroy a microbiological population
18 it doesn't regenerate itself on its
19 own. So I don't believe that they
20 are referring to the microorganism
21 population when they are talking
22 about short-lived.

23 BY MR. PETTIT:

24 Q. So what do you understand



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1 the second sentence to mean, "the
2 effects of acid disposal probably
3 were short-lived," what were the
4 effects?

5 A. They are probably talking
6 about the actual pH conditions of the
7 area where the acid was disposed, so
8 they may -- an acid waste may be
9 spilled, it can mobilize metals, it
10 can then take up through the
11 buffering capacity of the soil that
12 acid spill may be neutralized or
13 start to be neutralized.

14 And I think that's what
15 they are talking about, the short-
16 lived nature of the acid spill or the
17 localized aerial distribution of the
18 acid spill.

19 If the spill is small
20 enough, if it's not a high strength
21 acid, then the buffering capacity of
22 the soil could limit the extent of
23 those impacts.

24 Q. And am I correct that the



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1 acid could be affected by dilution
2 from rainwater, groundwater on the
3 site, moisture in the soil, they all
4 have an effect on the effects of the
5 acid?

6 A. Well, both would have an
7 effect on one another. Just like if
8 you had -- if you poured acid into
9 this water bottle, the water would
10 become more acidic, the acid would
11 become less acidic.

12 It would combine to create
13 a pH that is higher in the
14 groundwater, in this case, in a pH
15 that is lower for the original acid
16 that was spilled.

17 Q. Now, what is your
18 understanding about the term short-
19 lived as used in this RI?

20 MR. HARRIS: Objection.
21 Assuming he has an understanding of
22 what they meant.

23 BY MR. PETTIT:

24 Q. Yes. Assuming you have an



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1 understanding.

2 A. I don't know exactly what
3 they are referring to by short-lived
4 in the RI.

5 Q. Well, in your experience in
6 connection with examining the effects
7 of acid disposal, do you have any
8 understanding yourself about how long
9 the effects of acid disposal remain
10 at a site?

11 A. Well, again, it depends
12 on -- it would depend on a number of
13 factors.

14 Again, the most important
15 ones would be -- see, there's nothing
16 in here about the volume of the acids
17 spilled. That would be a primary
18 factor in determining how short-lived
19 or long-lived it was.

20 The type of acid would be
21 another factor. The strength of that
22 acid would be a factor.

23 The only thing that I can
24 think of that they are talking about



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1 is if an acid is spilled just on the
2 soil, then the buffering capacity of
3 the soil will eventually help to
4 absorb and neutralize that acid.

5 But if the acid -- but in
6 that process it will mobilize metals
7 in the soil. And if it reaches
8 groundwater, it will decrease the pH
9 of the groundwater and help to
10 mobilize contaminants in the
11 groundwater.

12 Q. If you could just turn back
13 to 5-4 of the same exhibit, and this
14 will be the second full paragraph.
15 And that refers to spills of ammonia
16 at the site.

17 Do you agree with the third
18 sentence, "Therefore, ammonia spills
19 could have enhanced the mobility of
20 metals at the site in the past"?

21 A. Yes.

22 Q. And would that be limited
23 to certain metals or types of metals?

24 A. Well, certain metals may



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1 have a greater propensity to mobilize
2 in the presence of ammonia, just like
3 any other -- every metal has
4 different properties and behaves in
5 different ways.

6 There may be some
7 similarities between metals but they
8 all behave in different ways. But
9 ammonia could in general mobilize
10 metals in the soil.

11 Q. And could ammonia mobilize
12 arsenic?

13 A. It's possible. Again,
14 arsenic chemistry is a lot more
15 complex, but it's possible that it
16 could mobilize arsenic.

17 Q. Is there a particular form
18 of arsenic that would be more likely
19 be mobilized by ammonia than another?

20 A. I don't know if there is or
21 not.

22 Q. How about chromium, is
23 chromium mobilized by ammonia?

24 A. Again, just like arsenic,

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1 it could be. Chromium chemistry is
2 complex also.

3 Q. Now, you mentioned a form
4 of chromium called chromium VI
5 yesterday, I think that's right,
6 Roman numeral VI?

7 A. Correct.

8 Q. Would that be mobilized by
9 ammonia?

10 A. It could be, yes.

11 (Vandeven Exhibit 14 was
12 marked for identification.)

13 BY MR. PETTIT:

14 Q. I have also marked as
15 Vandeven-14 Page 5-20 from the RI.
16 And in particular, Mr. Vandeven, the
17 first full paragraph talks about
18 spills of ammonia, sulfuric acid and
19 ferrous chloride at the site.

20 And there's a sentence,
21 fourth or fifth sentence, "However,
22 those effects could have been short-
23 lived and probably no longer
24 represent a source of contamination



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1 at the site."

2 Now, I think we have
3 addressed the short-lived aspect of
4 it. Am I right?

5 A. Yes, I believe so.

6 Q. Excuse me, I have something
7 in my eye.

8 And how about the statement
9 "probably no longer represents a
10 source of contamination at the site"?

11 MR. HARRIS: What's the
12 question?

13 BY MR. PETTIT:

14 Q. Do you agree with that
15 statement?

16 A. Well, to the extent that
17 they are -- and I believe what they
18 are referring to is that the
19 compounds in those spills probably do
20 not represent a source of
21 contamination at the site.

22 If they were spilled in the
23 1970s, and I believe the RI is in the
24 mid 1990s, 20 years later the



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1 compounds in those spills do not
2 represent a source of contamination
3 at the site, and I would generally
4 agree with that.

5 Q. And how about the last
6 sentence, "Both processes would have
7 enhanced the rate of migration of
8 other metals but also would have been
9 short-lived." Do you agree with
10 that?

11 A. Again, depending on the
12 particular characteristics of the
13 spill, the ability for the spill to
14 mobilize metals may have been short-
15 lived, but once those metals become
16 mobilized, then other interactions
17 occur in the migration of those
18 metals is not necessarily short-
19 lived.

20 MR. PETTIT: I'm going to
21 take a break.

22 (Recess taken)

23 BY MR. PETTIT:

24 Q. Mr. Vandeven, if you could



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1 turn to your rebuttal report, if you
2 have that in front of you, on Page
3 5. And in particular the third
4 bullet of that, if you would just
5 take a second to read that.

6 A. Okay.

7 Q. Now, am I correct to read
8 this, you offer an example of some
9 data of a pH reading in the swamp a
10 few days after the bulk release of
11 ferrous chloride in October of '73,
12 and also another example of dying
13 fish and trees a half a mile from the
14 release site in January '74, and some
15 more data in July '74 of pH
16 measurements. Am I right?

17 A. Correct.

18 Q. Now, am I correct that
19 those all are measurements of pH in
20 the surface water?

21 A. I would say that they are
22 pH measurements of the water in the
23 wetlands, yes.

24 Q. Are you aware of any other



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1 data in the Boarhead record that
2 would indicate measurements of
3 groundwater at this point as opposed
4 to surface water during the period
5 that wastes were disposed of at
6 Boarhead?

7 A. I'm not aware of any, no.

8 Q. And if you would, starting
9 on Page 6, I guess the top of Page 6
10 of your report, that sentence "Thus
11 earlier releases of acid wastes would
12 have facilitated a migration of
13 contaminants released at other
14 times." Could you explain that?

15 A. The copy I have says "Thus
16 early releases of acid wastes would
17 have facilitated the migration of
18 releases facilitated at later times."

19 Q. What did I say?

20 A. I think you said other
21 times.

22 Q. Later. You read that
23 correctly.

24 A. I'm just going to go back



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1 and look at the entire bullet.

2 Q. Sure.

3 A. Okay. What this is
4 referring to, again, is something
5 that we have talked about previously.

6 You could have -- if you
7 have a spill of acid waste, it could
8 become neutralized in the soil by the
9 buffering capacity of the soil
10 neutralizing that acid waste.

11 But what that does is it
12 depletes the buffering capacity of
13 the soil thus releases at later times
14 won't have the same -- it's possible
15 that they will not undergo the same
16 type of neutralization because the
17 buffering capacity of the soil has
18 already been depleted.

19 Q. Now, in connection with
20 your report, did you develop an
21 understanding, I mean of your
22 original report, of the period of
23 time that wastes were discharged at
24 Boarhead?



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1 A. In general, yes. I'm not
2 sure anybody ever developed a
3 complete understanding of when wastes
4 were disposed of at Boarhead.

5 Q. And to your understanding,
6 what period of time was that?

7 A. From, you know, the late
8 1960s through at least the mid 1970s.

9 Q. Now, if your opinion is
10 correct that acidic wastes would have
11 mobilized metals already existing in
12 the soil as opposed to being in the
13 waste themselves, and had that
14 occurred early in the period of time
15 that wastes were discharged at
16 Boarhead, is it your opinion that
17 later discharges of wastes would have
18 mobilized metals as well already in
19 the soil?

20 A. Yes. It would be a
21 continuous -- it would be a
22 continuous process.

23 Q. If you were to take the
24 exact same location and acid wastes



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1 were disposed of in say the late '60s
2 and had the effect of mobilized
3 metals, to the extent that all metals
4 present in that soil were then
5 mobilized, what effect, if any, would
6 a later disposal of acid had at the
7 very same location?

8 MR. HARRIS: Objection to
9 the form.

10 THE WITNESS: Well, that's
11 a hypothetical that just is very
12 unlikely to occur in nature.

13 Unless -- it's very
14 unlikely that an acid spill would
15 mobilize all the metals in a
16 particular soil volume, unless it was
17 a very, very discreet small volume of
18 soil and a very, very concentrated
19 acid that would in essence dissolve
20 the soil.

21 You are always going to
22 have some soil particles containing
23 metals left after an acid spill.

24 And, again, unless it was a



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1 very, very concentrated spill, you
2 would continue to have some metals
3 present that would be susceptible to
4 migration from later spills.

5 BY MR. PETTIT:

6 Q. Did you review any data
7 from the Boarhead site that would
8 enable you to make those kinds of
9 determinations?

10 MR. HARRIS: Objection to
11 the form.

12 THE WITNESS: No. Not that
13 I can recall.

14 BY MR. PETTIT:

15 Q. When you used the term
16 migration on the top of Page 6 of
17 your rebuttal report, is that another
18 word for solubility of the metals?

19 A. No, not necessarily. They
20 are related, but the solubility of a
21 metal affects the migration. More
22 soluble metals will migrate further.
23 Metals in soluble form will migrate
24 further.



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1 Q. One of the other things you
2 talked about yesterday was the effect
3 of destruction of organics in the
4 soil and that reduces biodegradation
5 of certain substances. Am I right?

6 A. I believe I talked about
7 the effect of acid spills on two
8 things.

9 One, natural microorganisms
10 which would affect the degradation of
11 organic compounds and then also the
12 destruction of organic matter in the
13 soil which would reduce the soil's
14 ability to adsorb or absorb both
15 metals and organics in the soil.

16 Q. The question wasn't a good
17 one. You also talked, I think, about
18 degrading TCE and the effect of acids
19 on that. Am I right?

20 A. Yes.

21 Q. And what was your opinion
22 on that?

23 A. That was the -- just the
24 first example that I just gave.



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1 That's when -- and from the
2 RI that you just presented before I
3 think in Exhibit 13, acid spills
4 could have affected and destroyed the
5 natural microorganisms in the soil
6 which would have affected the ability
7 of those microorganisms to degrade
8 organic compounds like TCE.

9 Q. And under normal conditions
10 how quickly do those microorganisms
11 degrade a substance like TCE?

12 A. That varies very widely
13 from on the order of weeks and months
14 to years, depending on many other
15 factors.

16 Q. Is it true, though, that
17 acid will accelerate because of the
18 chemical reaction of the acid with
19 the TCE more quickly than the
20 microorganisms if acid is introduced
21 to TCE?

22 A. I didn't follow that
23 question.

24 Q. Okay. If there's TCE in

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1 the soil, and I think you are telling
2 me that microorganisms will work to
3 degrade that, break up the TCE --

4 A. That's correct.

5 Q. -- by attacking it. Is it
6 fair to say that the introduction of
7 acid into that soil containing TCE
8 will accelerate the process whereby
9 TCE is degraded?

10 A. No. Not necessarily, no.
11 I mean, you could postulate a
12 situation where the introduction of
13 acid may help.

14 For instance, if you have a
15 very, very basic that is high pH
16 environment and the only process or
17 the only factor eliminating
18 degradation is the acidity of the
19 environment, then, yes, introduction
20 of some acid or reducing the pH to
21 near neutral or slightly acidic
22 conditions may help, but that's more
23 of a laboratory-controlled
24 environment consideration.



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1 Q. But that basic principle is
2 used by the refineries, is it not, to
3 help degrade organic materials at a
4 refinery?

5 A. Well, introduction of
6 acid -- and I think we talked a
7 little bit yesterday in response to
8 one question about acid sludges at
9 refineries.

10 Refineries do use acid to
11 destroy microorganisms and to effect
12 the pH reactions to take place in a
13 refinery, but I'm not aware of the
14 introduction of acids to increase the
15 degradation of organic compounds of
16 refineries.

17 Q. Again, is there any data in
18 the Boarhead record that reflects
19 whether or not the degradation of TCE
20 and other organics was affected by
21 acid, the introduction of acid?

22 A. Just the language that we
23 read in Exhibit 13 from the RI.

24 Q. But that is no -- well,



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1 that may or may not be a result of
2 data from the Boarhead site, am I
3 right, that statement?

4 A. That's correct.

5 Q. And you are not aware if
6 there is any data that supports that
7 statement?

8 A. That's correct.

9 Q. Is the mobility of metals
10 in the groundwater controlled by,
11 among other things, the adsorption
12 capacity of the soils in the
13 saturated zone or the unsaturated
14 zone?

15 MR. HARRIS: Objection to
16 form.

17 THE WITNESS: Both.

18 BY MR. PETTIT:

19 Q. And how do you
20 understand this -- what is the
21 saturated zone? What is your
22 understanding?

23 A. Well, in simple terms, the
24 saturated zone is the area of the



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1 subsurface below the water table;
2 that is, the area where the soil is
3 saturated with water.

4 Q. As opposed to the
5 unsaturated zone, that is what?

6 A. The unsaturated zone would
7 be also referred to as the vadose
8 zone or the area above the
9 groundwater table.

10 Q. And if acids enter either
11 of those zones, can they be diluted
12 by the introduction of water?

13 A. Any time that you introduce
14 a liquid to an acid waste that has a
15 different pH it will influence the
16 acidity or pH of that material.

17 So if an acid waste is
18 introduced to water, groundwater as
19 we talked about before, they will
20 equilibrate to some pH which will be
21 lower than the natural pH of the
22 groundwater and higher than the pH of
23 the acid waste that was introduced.

24 Q. And that is true in both



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1 the unsaturated and saturated zone,
2 that can happen in both zones?

3 A. It can happen in both
4 zones.

5 The unsaturated zone
6 doesn't have as much water in it, it
7 may have some, but the soil pores are
8 not saturated with water as they are
9 below the water table, so just that
10 dilution phenomena is not as
11 significant as in the unsaturated
12 zone.

13 Q. And where are the
14 microorganisms located?

15 A. They would be in both
16 zones. They would be in both zones.

17 Q. Give me just a second
18 here. I want to check one reference.

19 Mr. Vandeven, if you could
20 go to the first report, Vandeven-1,
21 Page 16. In the first full paragraph
22 and the last sentence of that, I just
23 want to make sure I understand this.
24 Do you see that?



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1 A. Yes.

2 Q. And it reads, just for the
3 people on the phone, "Wastes released
4 at the site entered the subsurface
5 environment and this shallow
6 groundwater system as a result of
7 natural processes (such as gravity-
8 driven flow of liquids and
9 infiltration of rainwater and
10 snowmelt) and human activities (such
11 as burial of drums and disposal in
12 pits)."

13 Now, when you use the term
14 subsurface environment, could you
15 define that?

16 A. Well, the subsurface
17 environment would in general
18 encompass both zones that we talked
19 about before.

20 The unsaturated zone, or
21 just the soil that is not saturated
22 with water and then the groundwater
23 system, the subsurface where the
24 pores of the soil are saturated with



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1 groundwater.

2 Q. The gravity-driven flow of
3 liquids, could that include water
4 from other areas of the site moving
5 through a particular area of the
6 site?

7 A. Yes. That could include
8 things like rainwater infiltrating in
9 through the soil, through the
10 unsaturated zone. It could include
11 bulk waste that's disposed of
12 infiltrating through the unsaturated
13 zone.

14 Q. And just to follow up on
15 this point, and I'm sorry to be
16 jumping through, on Page 6 of your
17 rebuttal, and this is the last time
18 we will probably have to do this, and
19 I'm looking at the very last
20 bullet -- well, first of all, let me
21 go to the first bullet while I'm
22 here.

23 You used a term recharge
24 rates. What does that mean?



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1 A. Recharge rates refers to
2 how quickly water flows through that
3 unsaturated zone down to the
4 groundwater.

5 So if you have a situation
6 where you have no water in that
7 unsaturated zone, that first inch of
8 rainwater, for instance, that hits is
9 going to take a certain time to get
10 down to the groundwater.

11 If you have that
12 unsaturated zone that already has
13 seen five inches of rainwater in the
14 previous week, that next inch is
15 going to flow through a lot quicker.

16 That's why, you know, it's
17 sometimes -- even though you have
18 only had a little bit of rain the
19 ground becomes saturated because the
20 week before you had a significant
21 amount of rain.

22 Q. Is there a data in the
23 Boarhead record that would enable one
24 to calculate how much rainwater



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1 falling from the sky infiltrates the
2 groundwater in a given area of the
3 site?

4 A. I'm sure that data is
5 available. That kind of
6 meteorological data is always
7 presented in the RI.

8 Q. Am I also correct that the
9 groundwater modeling report for the
10 site would also calculate a recharge
11 rate?

12 A. It should, yes.

13 Q. Have you -- I think you've
14 reviewed the groundwater modeling
15 report according to your report.
16 Would you have any reason to
17 challenge the recharge rate that was
18 calculated by the people who did the
19 modeling at the site?

20 A. I believe you are referring
21 to the Brown & Caldwell groundwater
22 model. I did review that.

23 I don't recall exactly the
24 recharge rate they calculated or how



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1 they calculated it, but I have no
2 reason sitting here today to question
3 their calculated recharge rate.

4 Q. And you did not make a
5 calculation yourself in preparing
6 your report as to the recharge rate
7 and how much water would have
8 infiltrated the Boarhead site in any
9 particular area of the Boarhead site?

10 A. That's correct.

11 Q. Am I right you could also
12 use the groundwater modeling report
13 to measure the flow of water, the
14 groundwater flow of water -- the
15 groundwater flow at the site?

16 MR. HARRIS: Objection.

17 THE WITNESS: You are going
18 to have to rephrase that. I'm not
19 sure I understand.

20 BY MR. PETTIT:

21 Q. Okay. Am I correct that
22 the groundwater modeling report gives
23 you data that would enable you to
24 evaluate the volume of water that was



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1 flowing through the groundwater
2 system at Boarhead?

3 A. I believe that that was one
4 of the outputs from their groundwater
5 model, the transmissivity, or the
6 volume of groundwater, as you put it,
7 that flowed through a certain area of
8 the site, yes.

9 Q. And in preparing your
10 report, did you make any calculations
11 using that data of the flow of
12 groundwater?

13 A. No, I did not.

14 Q. And just going back to Page
15 6 of the second bullet, the last
16 bullet on Page 6 of your rebuttal,
17 you talk about large quantities of
18 liquids would cause increase in
19 migration metals in the subsurface.

20 This would tend to reduce
21 the concentration of hazardous
22 substances and spread them over a
23 larger area.

24 Would that include



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1 rainwater and snowmelt when you say
2 large quantities of liquids?

3 A. Yes.

4 Q. Your report, and I'm
5 talking about the original one, and I
6 can give you the reference if you
7 need it, but it talked about the
8 installation of a system to collect
9 and treat contaminated groundwater
10 not as part of OU1 but earlier, it
11 was part of the earlier remedies. Am
12 I right?

13 A. Yes.

14 Q. You know what I'm talking
15 about. I don't have to point you to
16 the report. Am I correct that the
17 purpose of that was to contain the
18 VOC plume that was detected at the
19 site?

20 A. That was installed to
21 intercept the contaminated
22 groundwater plume at the site.

23 Q. And at that point when that
24 was installed, was there any part of



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1 that that was designed to collect
2 metals that might be in that
3 groundwater?

4 MR. HARRIS: Objection to
5 the form.

6 THE WITNESS: It didn't
7 distinguish between metals in the
8 groundwater and VOCs in the
9 groundwater. An interceptor trench
10 is going to collect the bulk
11 groundwater and whatever is in that
12 groundwater will be removed from the
13 trench.

14 BY MR. PETTIT:

15 Q. And am I correct that as
16 part of OU1 that an enhancement to
17 that system was made, including a
18 metal precipitation system. Am I
19 right?

20 A. Correct.

21 Q. Just explain to me, what
22 does that system do that the earlier
23 version of the system could not do
24 with respect to metals?



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1 A. It will, depending on what
2 the cleanup levels are for the
3 groundwater and then what the
4 discharge limits are for the
5 discharge of that treated water, and
6 we talked about this yesterday, that
7 there was both cleanup levels for the
8 groundwater that included metals and
9 discharge limits for the treated
10 water that included both VOCs and
11 metals.

12 The precipitation element
13 of the remedy would remove those
14 metals from the groundwater before
15 they got to the air stripping system,
16 which was largely a VOC-related
17 element of the system.

18 So it would in effect
19 through an engineered system use some
20 of the same natural processes that we
21 have been talking about over the last
22 few days to take those dissolved
23 metals and precipitate them out, make
24 them solids again and remove those

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1 from the groundwater to meet the
2 cleanup levels, the discharge levels
3 and the operational criteria that
4 were necessary to operate the air
5 stripping system.

6 Q. I am almost done. I just
7 have two more areas to cover. If you
8 would turn to Page 7 of the rebuttal
9 report.

10 Okay, that first full
11 paragraph and then the last sentence
12 which reads, "General statements
13 regarding the behavior of chemicals
14 that do not account for site-specific
15 conditions will not necessarily be
16 predictive of the behavior of metals
17 and organic chemicals in a specific
18 environment."

19 Did I read that correctly?

20 A. Yes.

21 Q. When you used the term
22 "general statements," what were you
23 referring to?

24 A. I believe in the rebuttal



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1 report here I was referring to the
2 fact that some of the other expert
3 reports that I was looking at that
4 was the basis of this rebuttal report
5 seemed to be making very generalized
6 statements about the behavior of
7 individual metals and how they would
8 have behaved at the site without
9 looking at and evaluating some of the
10 other factors that would have
11 affected the migration of those
12 metals.

13 Q. Is it fair to say that your
14 original report also makes general
15 statements of that nature?

16 A. My original expert report
17 makes some general statements, yes,
18 but I don't reach the same -- I'm not
19 reaching the same conclusion.

20 My general statements are
21 used to, in effect, reach a fairly
22 general opinion, that all waste
23 disposed of at the site and all forms
24 of wastes disposed of at the site

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1 contributed to the need for and the
2 cost of remediation.

3 Whereas, the other expert
4 reports that this statement is
5 related to seem to be making very
6 general statements and then saying,
7 therefore, this waste or this
8 chemical did not contribute to the
9 need for remediation at the site.

10 Q. Do you believe that the
11 general statements in your original
12 report account for site-specific
13 conditions?

14 A. To the extent that they
15 needed to to support my opinion, yes.

16 Q. And for example, could you
17 give me an example of what you refer
18 to as a site-specific condition?

19 A. A site-specific condition
20 is, for instance, the fact that there
21 is a diabase there that has
22 relatively high concentrations of
23 natural metals and that acid wastes
24 that come in contact with that



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1 diabase could dissolve those metals,
2 it could enhance the migration of
3 those metals down gradient.

4 That's one of the reasons
5 they had to treat metals in the
6 residential water systems -- water
7 treatment systems that they
8 installed.

9 So that would be a site-
10 specific consideration, the fact that
11 there was a diabase there that had
12 high concentration of metals.

13 Q. Would the groundwater
14 monitoring wells, the results of that
15 over time, would that give you data
16 on site-specific conditions at the
17 site?

18 A. Well, sure it will give you
19 information on the concentrations of
20 contaminants that were found at the
21 site.

22 Q. And how about the recharge
23 rate that was calculated in the
24 remodeling report, would that give

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1 you data on site-specific conditions?

2 A. Sure. It would give you an
3 estimate of what the site-specific
4 recharge rate was, yes.

5 Q. And the groundwater
6 modeling system would give you data
7 on the flow, how quickly the
8 groundwater was flowing through the
9 site?

10 A. It may. Again, the
11 modeling that they did was a modeling
12 exercise to help design the
13 interceptor trench system.

14 The volume of flow through
15 the site may have been an element of
16 that modeling, but I don't recall
17 sitting here right now if it was or
18 not.

19 Q. In your experience, when
20 those groundwater modeling systems
21 are developed, do they rely upon data
22 at the site?

23 A. To the extent that there is
24 data available. It's almost always



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1 some combination of site-specific
2 information and literature-derived
3 information.

4 Q. Do you know in the case of
5 the Boarhead site what site-specific
6 data was available to those who
7 developed the groundwater modeling
8 system?

9 A. No, I don't.

10 Q. Mr. Vandeven, is it your
11 opinion that had there been no, and I
12 will use the term corrosive waste
13 solutions without substantial
14 quantities of metal that we talked
15 about yesterday, if that had never
16 been disposed of at the Boarhead
17 site, would the remedy be any
18 different than it is, in your
19 opinion?

20 MR. HARRIS: Objection to
21 the form.

22 THE WITNESS: Well, I
23 wasn't asked to look at that
24 question. That's a fairly complex



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1 question. Again, I wouldn't -- I
2 don't have -- I would have to really
3 evaluate that in some detail to
4 address that question.

5 I believe that the
6 corrosive wastes that did not contain
7 substantial quantities of metals did
8 contribute to the need for and the
9 cost of the remedy at the site.

10 How that may have differed
11 from a remedy if those wastes were
12 never disposed of, I couldn't say
13 sitting here right now.

14 BY MR. PETTIT:

15 Q. And what information would
16 you need to look at to make that
17 determination?

18 A. Well, you would have to --
19 I mean, you would have to have
20 information that you very likely
21 don't have at the site. As we just
22 read before from the RI, the number
23 of bulk discharges at the site and
24 where they occurred is unknown.



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1 This was in large part a
2 clandestined criminal operation. To
3 the extent that they know where
4 spills took place and the volume of
5 those spills and the character of
6 those spills, all that information is
7 in the record right now.

8 I don't think they are
9 gathering any new information on
10 those issues.

11 And to address a question
12 like you have just posed, you would
13 have to have information that you
14 don't have and likely will never
15 have, and that would include the
16 volume of the waste disposed, exactly
17 where it was disposed, the
18 characteristics of that waste that go
19 beyond what we know, the exact
20 acidity of the waste, the exact
21 strength of that acid waste.

22 Those would be the things
23 that you would have to know to answer
24 such a precise, almost theoretical

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1 question like that.

2 Q. And am I correct that you
3 were not given any testimony from
4 drivers for DeRewal or other drivers
5 who claimed to have disposed of
6 various wastes at the site to review?

7 A. I don't recall if any of
8 the depositions we looked at included
9 drivers. I just don't recall,
10 sitting here right now.

11 Q. And if you had, that would
12 have been listed in terms of the
13 materials that you reviewed to
14 prepare your report?

15 A. That is correct.

16 MR. PETTIT: That's all the
17 questions I have, Mr. Vandeven.
18 Thank you.

19 MR. HARRIS: Seth, you want
20 to go next?

21 MR. COOLEY: Sure.

22 MR. HARRIS: We still have
23 you guys on the phone, right?

24 (Discussion off the



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1 record.)

2 EXAMINATION

3 BY MR. COOLEY:

4 Q. Good morning,
5 Mr. Vandeven. My name is Seth
6 Cooley. I represent Flexible
7 Circuits in this case.

8 MS. FLAX: Seth, I'm sorry,
9 can you speak up.

10 MR. PETTIT: We're going to
11 switch seats, Melissa. He will be a
12 little closer to the phone.

13 MS. FLAX: Okay, thank you.

14 BY MR. COOLEY:

15 Q. Again, Mr. Vandeven, my
16 name is Seth Cooley. I represent
17 Flexible Circuits. I have some
18 questions for you this morning.

19 Let me pick up on perhaps
20 one of the last questions asked by
21 Mr. Pettit regarding your review of
22 depositions and I will expand that to
23 documents generally.

24 In terms of deposition or



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1 other testimony and any historical
2 documents relating to any of the
3 parties in this case, what do you A,
4 know, and B, recall reviewing in
5 preparation of your original report,
6 of those kinds of documents?

7 A. Well, from my original
8 report I primarily reviewed what I
9 would refer to as the administrative
10 record, the underlying environmental
11 reports from EPA.

12 I don't recall right now
13 whether or not any of those documents
14 included any deposition-related
15 material or any material specifically
16 from any of the individual companies
17 related to this matter.

18 Q. Information from any of the
19 individual companies or even
20 pertaining to any of the individual
21 companies?

22 A. Well, I was referring to
23 the former. There may have been
24 information in the underlying record



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1 about individual companies. And to
2 the extent that there was, I reviewed
3 that.

4 But I did not review -- I
5 don't recall reviewing documents that
6 were from or generated by or related
7 to individuals through, say,
8 deposition testimony related to
9 individual companies.

10 Q. So do I understand it
11 correctly that the kind of
12 information you are describing as
13 information you may have reviewed in
14 preparation of your original report
15 that related to any one or more
16 individual companies would have been
17 information included within some
18 document that was part of the
19 administrative record?

20 A. That's correct.

21 Q. And in fact it would have
22 been in some document that's listed
23 on the attachment to your expert
24 report that lists documents from the

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1 administrative record?

2 A. That's correct.

3 Q. How many hours did you
4 spend on your original expert report?

5 A. Me individually?

6 Q. You personally.

7 A. I don't recall. I would
8 have to go back and look at my
9 records. I can estimate.

10 Q. Okay.

11 A. I would estimate that I
12 spent maybe on the order of 150
13 hours.

14 Q. And what about your
15 colleague, Mr. Hawley, is it, how
16 many hours do you know or can you
17 estimate that he spent on that
18 original report?

19 A. I would say approximately
20 the same.

21 Q. Now, when you completed
22 that report you sent a bill to
23 Mr. Harris or someone for your work,
24 I assume?



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1 A. We send bills more
2 frequently than that, yes. A
3 monthly -- we would have sent a
4 monthly invoice.

5 Q. And considering the
6 totality of the invoices, however
7 many there were for your work up to
8 and including the issuance of your
9 original expert report, do you know
10 what the total billing amount was?

11 A. No, I don't.

12 Q. Would those invoices
13 reflect the number of hours you spent
14 on the report?

15 A. Yes.

16 Q. By individual or
17 timekeeper?

18 A. They would have -- they
19 should include by individual, yes.
20 So they would have names associated
21 with them.

22 Q. Do you keep time records?

23 A. Yes.

24 Q. And did you keep them for



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1 this project?

2 A. We keep time sheets, which
3 would include time spent on
4 individual projects, so time spent on
5 this individual project would be on
6 time records, yes.

7 Q. And those records still
8 exist?

9 A. They should, yes.

10 Q. Did you have a budget for
11 the project?

12 A. We did not have a specific
13 budget, no.

14 Q. Did you estimate at the
15 beginning of the project how many
16 hours and/or how many dollars might
17 be involved in producing your report?

18 A. I believe I provided
19 counsel with an estimate originally
20 for what I thought at the beginning
21 of the project would be a budget for
22 developing the original expert
23 report.

24 Q. Do you recall what that



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1 estimate was?

2 A. I believe it was on the
3 order of maybe \$30,000 to \$35,000.

4 Q. Do you know what the final
5 bill through the issuance of the
6 original report amounted to? And
7 when I say bill, I mean the summation
8 of your monthly bills, however many
9 there may have been.

10 A. No, I don't remember what
11 it was.

12 Q. When did you start, you
13 personally, start any work in
14 preparation of your original report?

15 A. Well, in June of 2006 it
16 was issued. I believe we started
17 work on it in early 2006.

18 Q. But you personally, when
19 did you first begin working on this
20 report, and by that I mean not just
21 drafting, I mean reviewing documents
22 to educate yourself on site history
23 or any other issue that you felt you
24 needed to become educated on to be



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1 able to write a report?

2 A. And that's what I was
3 referring to, my -- the original
4 involvement was my involvement, so it
5 would have been early 2006.

6 Q. Can you be more specific
7 about early 2006?

8 A. No.

9 Q. Do you know a date by which
10 you began your work?

11 A. No, I don't.

12 Q. In your rebuttal report or
13 as an attachment to your rebuttal
14 report you list some additional
15 materials that were reviewed and/or
16 relied upon.

17 And among those are
18 documents relied upon by Dr. Jurgen
19 Exner as listed in his expert report
20 of June 29, 2006. Do you see that
21 first line on Appendix A?

22 A. Yes.

23 Q. As written, that is not a
24 specific statement, by which I mean



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1 it says documents. That could mean
2 some, all, one.

3 Could you help me
4 understand specifically what
5 documents you relied upon as opposed
6 to reviewed or did something else
7 with?

8 A. Sure. As I testified
9 yesterday, I reviewed -- I was
10 provided with and reviewed all of the
11 documents that he relied on, that
12 Dr. Exner relied on.

13 But I relied on and had the
14 need to pull out from those documents
15 one very kind of narrow -- documents
16 related to a very narrow issue, and
17 that is information related to the
18 characteristics of the acid wastes
19 that were disposed of at the site.

20 So I focused on that kind
21 of narrow portion of his documents.

22 Q. Dr. Exner did not reach a
23 conclusion or opinion as to what
24 specific acid wastes or other wastes



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1 were disposed of at the site, did he?

2 A. I believe he did reach a
3 conclusion about the types of wastes
4 that -- and the concentration of
5 waste and the strength of the wastes
6 that were disposed of at the site,
7 yes.

8 Q. Actually disposed of at the
9 site?

10 A. Well, whether or not they
11 were actually disposed of at the site
12 or came from a party that was alleged
13 to have disposed of at the site,
14 that's not something that I was
15 concerned about.

16 I looked at what he was
17 saying about the acid wastes that are
18 connected with the site.

19 Q. Connected with, even as in
20 via an allegation, let's say?

21 A. Correct.

22 Q. When you say you relied
23 upon the documents -- strike that.

24 When you said a minute ago,



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1 I believe you said, correct me if I'm
2 wrong, that you relied upon certain
3 documents, I think you used the word
4 a narrow portion of the documents
5 upon which Dr. Exner relied, how do
6 you know what documents he relied
7 upon as opposed to what documents he
8 may have reviewed?

9 A. I believe that the way that
10 it was described to me was these are
11 the documents -- well, the way that
12 it proceeded was I, in developing my
13 original expert report, I did not
14 review or necessarily even know what
15 Dr. Exner was doing in the
16 development of his expert report.

17 In development of my
18 rebuttal report, I concluded that I
19 wanted to try to say something about,
20 and that it was important to look
21 into a little bit more detail the
22 characteristics of the acid wastes
23 that may have been disposed of at the
24 site.

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1 Then I reviewed Dr. Exner's
2 report. He said something in that
3 report about the characteristics of
4 that waste.

5 I determined that if I
6 wanted to say something about the
7 characteristics of that acid wastes
8 that I wanted to look at the
9 underlying documents. And so that's
10 how that proceeded.

11 I looked at -- I got the
12 documents that he relied on or
13 reviewed and relied on, I'm not -- I
14 can't say exactly what he -- how he
15 viewed the documents that he had.

16 But I looked at the
17 documents that Dr. Exner had and
18 cited for his expert report and
19 focused on those documents that were
20 related to the acid wastes.

21 Q. Although, in your rebuttal
22 report you didn't address or describe
23 or speak to specific acid wastes from
24 specific companies, did you?



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1 A. I didn't speak about
2 specific wastes from specific
3 companies, no. I talked in a little
4 bit more detail about the types of
5 wastes -- the types of acid wastes
6 that may have been disposed of at the
7 site, and the strength of those
8 wastes.

9 Q. In your original expert
10 report on Page 15, and I guess
11 carrying over onto Page 16 you have a
12 series of four bulleted paragraphs
13 that talk about certain types of
14 wastes, I might say industry-related,
15 not company-related, if that's a fair
16 description.

17 You said a minute ago that
18 you didn't look at any information or
19 have any information from Dr. Exner
20 prior to your preparation of this
21 original report.

22 So you didn't know what he
23 relied upon, you didn't know what he
24 even reviewed when you were writing

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1 this original report.

2 So where do you get
3 information about these particular
4 industries and wastes associated with
5 the industries? Why were you even
6 looking at these industries as
7 opposed to some other industries or
8 nothing?

9 MR. HARRIS: Objection to
10 the form. There's about ten
11 questions in that question.

12 BY MR. COOLEY:

13 Q. Do you understand my
14 question?

15 A. In general, yes.

16 And I think we discussed
17 this yesterday a little bit, that
18 information that I refer to here and
19 the wastes that I refer to here came
20 from both a review of the underlying
21 documents and also a discussion with
22 counsel about what wastes -- if these
23 wastes had been disposed of at the
24 site, what's your opinion about how



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1 they would behave at the site and
2 contribute to the need for
3 remediation at the site.

4 Q. Are you able today to go
5 through these four paragraphs and
6 identify which sentences or
7 statements are based upon information
8 drawn from documents you reviewed and
9 that would be listed on the
10 attachment to this original expert
11 report and which of these sentences
12 or statements were made based on
13 information obtained from counsel?

14 A. I don't believe I could do
15 that completely.

16 I know that, for instance,
17 the fourth bullet that refers to
18 solvent-containing wastes, there's
19 information in the underlying record
20 about TCE, which is a solvent waste,
21 being disposed of at the site.

22 As far as the others, I
23 could not say which came from or what
24 combination came from a review of the

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1 underlying documents or discussions
2 with counsel.

3 Q. Is there any statement
4 in -- sentence or statement in any
5 of these four bullets that you can
6 identify as being based upon
7 information provided by counsel?

8 A. As compared to information
9 from the underlying documents?

10 Q. Yes.

11 A. No.

12 Q. When did you start actually
13 writing your original expert report,
14 or that portion of it that you wrote,
15 as opposed to Mr. Hawley?

16 A. I couldn't tell you.
17 Sometime prior to June 30th, 2006.

18 Q. No earlier than the
19 beginning of 2006. Is that fair?

20 A. That would be fair.

21 Q. Did you do all your writing
22 within the month of June?

23 A. I don't know.

24 Q. Returning again to



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1 attachment -- excuse me, Appendix A
2 to your rebuttal report. This is
3 headed additional materials reviewed
4 and/or relied upon.

5 And that same first line,
6 documents relied upon by Dr. Jurgen
7 Exner in his original report of June
8 29, 2006, how did you obtain those
9 documents?

10 A. I believe I obtained those
11 documents from counsel.

12 Q. And how many pages, boxes
13 or other unit that you might choose
14 to use did those documents comprise?

15 A. I believe they took up
16 about two banker's boxes,
17 approximately. And I take that back,
18 I believe that Dr. Exner -- I believe
19 I got the documents physically mailed
20 to me from Dr. Exner, but it was
21 through a request via counsel.

22 Q. Okay. And did you turn
23 every page, so to speak and read
24 every page of the documents in those



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1 boxes, or did you in some cases
2 identify a multi-page document,
3 review it to understand what it was
4 and decide that it was unnecessary to
5 review all pages that it was
6 comprised of?

7 MR. HARRIS: Objection to
8 the form.

9 THE WITNESS: We, both
10 myself and Mr. Hawley, a combination
11 looked at every document, again
12 because we were interested in finding
13 information on a specific issue.

14 So we wanted to make sure
15 that we were complete in identifying
16 the documents that related to that
17 issue. So we generally reviewed
18 every page, if you will, in those
19 boxes.

20 BY MR. COOLEY:

21 Q. So to the extent -- well,
22 let me ask you, were there any
23 deposition transcripts in those
24 boxes?



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1 A. I don't recall if there
2 were or not.

3 Q. Do you recall reading any
4 deposition transcripts in this
5 matter?

6 A. Yes.

7 Q. What specific witness
8 testimony do you recall reading?

9 A. The deposition transcripts
10 from the experts that are listed in
11 my rebuttal report.

12 Q. Other than those expert
13 depositions, do you recall any other
14 witness whose deposition transcript
15 you read?

16 A. No, I don't.

17 Q. Do you know that you did
18 not read any deposition transcripts
19 other than the transcripts of
20 experts' depositions?

21 A. No. I could have looked at
22 some depositions, I just don't recall
23 reviewing depositions as part of my
24 original expert report.



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1 Q. How about as part of your
2 preparation for writing your rebuttal
3 expert report?

4 A. The same.

5 Q. And I'm sorry if I asked
6 this already, but were there -- do
7 you recall whether there were any
8 deposition transcripts in those boxes
9 that you received from Dr. Exner?

10 A. I don't recall if there
11 were or not.

12 Q. Okay. So if I understood
13 you correctly, you looked at, I guess
14 in a complete way, if I could use
15 that word, each of the documents that
16 you identified among those received
17 from Dr. Exner that related to the
18 acid wastes or particular issues of
19 concern to you for purposes of your
20 rebuttal expert report. Is that
21 correct?

22 A. That's a fair statement,
23 yes.

24 Q. However, documents that you



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1 identified as not being pertinent to
2 acid wastes or issues you wanted to
3 address in your expert report you
4 didn't necessarily review thoroughly
5 because you concluded that they were
6 not related to the subjects of your
7 concern?

8 A. That's correct.

9 Q. Do you know how long it
10 took you to review the documents that
11 you did identify as pertinent to your
12 rebuttal expert report?

13 A. Not precisely, but
14 certainly within a couple of days.

15 MR. COOLEY: Off the record
16 for a second.

17 (Recess taken)

18 BY MR. COOLEY:

19 Q. Mr. Vandeven, did you have
20 any occasion at any point prior to
21 today to talk with Dr. Exner about
22 the Boarhead Farms site?

23 A. No.

24 Q. Do you know Dr. Exner?



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1 A. No, I do not.

2 Q. Have you ever had occasion
3 to read any of his writings?

4 A. Only his expert report in
5 this matter.

6 Q. Did your associate
7 Mr. Hawley have any occasion to speak
8 with Dr. Exner?

9 A. I don't believe so, no.

10 Q. Was there anyone in your
11 office other than yourself and
12 Mr. Hawley, as professionals, who
13 worked on this assignment for
14 plaintiffs in this matter?

15 A. I believe, as we looked at
16 yesterday, there was a little bit of
17 work done by a woman named Jennifer
18 Schulte, but that would have been a
19 very, very, a very small amount of
20 work. It was essentially myself and
21 Dr. Hawley.

22 Q. Dr. Hawley is a doctor of
23 what?

24 A. He has a Ph.D. in



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1 hydrogeology.

2 Q. I think you referred to him
3 as your hydrogeologist?

4 A. Correct.

5 Q. You are not a
6 hydrogeologist?

7 A. I do not have a degree in
8 hydrogeology, that is correct.

9 Q. Do you consider yourself an
10 expert in hydrogeology?

11 A. I consider myself an expert
12 in fate and transport of chemicals in
13 groundwater, which I would consider
14 part of hydrogeology.

15 Q. You are not a professional
16 geologist. Is that correct?

17 A. That's correct.

18 Q. Do you consider yourself an
19 expert in geology?

20 A. Some aspects of -- geology
21 is an extremely large discipline. To
22 the extent that it relates to
23 chemicals in the subsurface, I
24 consider myself an expert in those



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1 areas.

2 Q. Did you ever sit for any PE
3 exams?

4 A. No.

5 Q. Why did Mr. Hawley work
6 with you on this project?

7 A. Mark has a lot of
8 experience with -- both as a
9 hydrogeologist and a lot of
10 experience with the Superfund
11 process. And also Mark and I work a
12 lot together on projects, so he was a
13 natural person to assist me on this
14 project.

15 Q. Could you describe for me
16 the breakdown of responsibility or
17 assignments or lead or any other term
18 you might want to apply to the work
19 that the two of you did respectively
20 on the project?

21 A. I could generally describe
22 it, as I have done before. Mark
23 assisted me in reviewing the
24 underlying documents. There is, as



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1 you know, a very significant volume
2 of documents in the underlying
3 record.

4 He helped me write up the
5 parts of my expert report that deal
6 with the chronological development of
7 the site, issues related to some of
8 the fate and transport questions he
9 and I talked about together.

10 He helped review some of
11 the expert reports on the other side
12 of the case. In general was part of
13 every aspect of the case. That's
14 just generally how we work.

15 Q. Well, I guess my real
16 question was, was there any aspect of
17 the work leading toward the two
18 reports in which it was important to
19 you to have Mr. Hawley's experience
20 or expertise, as opposed to applying
21 your own?

22 MR. HARRIS: Objection to
23 the form.

24 THE WITNESS: It was -- as



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1 a scientist and engineer you always
2 want to collaborate. Collaboration
3 is always better than isolation.

4 So on issues related to
5 fate and transport processes, it's
6 always better to get Mark's input on
7 those issues.

8 Even though I consider
9 myself an expert on those topics,
10 it's always better to get some input
11 from others.

12 BY MR. COOLEY:

13 Q. Do you recall there being
14 any point of disagreement between the
15 two of you as to any issue involved
16 in the subjects of your two reports?

17 A. No, I don't.

18 Q. Yesterday two documents
19 were marked as exhibits, Exhibits
20 Vandeven 2 and 3. And you may recall
21 these were the e-mails between you
22 and Dr. Hawley regarding this
23 probabilistic analysis that's
24 referenced here.



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1 Did you review or discuss
2 either those two documents, or either
3 one of them, or the subject of a
4 probabilistic analysis with
5 Mr. Harris in preparation for the
6 deposition yesterday and today?

7 A. I don't recall discussing
8 it with him, no.

9 Q. You I think said you spent,
10 correct me if I'm wrong, something
11 like two and a half hours in
12 preparation with Mr. Harris?

13 A. In preparation for my
14 deposition yesterday and today?

15 Q. Correct.

16 A. Correct. I met with
17 Mr. Harris for approximately two and
18 a half hours.

19 Q. I thought that's what you
20 said, right. And did you review any
21 documents during that time with
22 Mr. Harris?

23 A. We went back and reviewed
24 in general my two expert reports. I

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1 believe we went through very briefly
2 some of the drafts of the expert
3 reports.

4 I believe a question came
5 up about information that I thought
6 was in the record of decision, so we
7 may have pulled out the record of
8 decision in the case.

9 Other than that, I don't
10 recall a specific document that we
11 referred to in our preparation.

12 Q. Prior to meeting with
13 Mr. Harris, did he ask you to review
14 documents in preparation for your
15 deposition?

16 A. Any specific documents, no.

17 Q. Any category of documents
18 or general documents?

19 A. Well, like most attorneys
20 that I work with, he said in
21 preparation, review your expert
22 reports.

23 Q. When you reviewed the
24 drafts of your report with



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1 Mr. Harris, were there any particular
2 issues that you discussed relating to
3 differences between any draft or
4 drafts and the finals?

5 A. I believe we generally
6 discussed a couple of pieces of the
7 report that changed from draft to
8 draft, but nothing -- nothing
9 specifically that I can remember.

10 Q. Did you discuss the matter
11 of allocation with him at all?

12 A. I believe we discussed
13 briefly the issue that we talked
14 about yesterday, the change in that
15 one last paragraph of I believe it
16 was the rebuttal, I believe it's the
17 rebuttal expert report.

18 But that's the only one
19 that we discussed that had anything
20 to do with allocation.

21 Q. And what was said by either
22 of you?

23 A. I believe, as I said
24 yesterday, I reminded Mr. Harris



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1 about the development of that
2 paragraph and why I changed it from
3 the draft to the final.

4 And that was, again, after
5 reviewing the expert reports from the
6 other side they made certain
7 statements about allocation.

8 And so in my rebuttal
9 report I had that last paragraph that
10 spoke to, at least in general terms,
11 the allocation issue.

12 And then decided that
13 rather than give that general
14 narrative I would give a specific
15 example of why an allocation analysis
16 would be complex at the site.

17 And that was therefore the
18 origin of the paragraph that we spent
19 some time on yesterday regarding the
20 TCE degreaser sludge.

21 Q. It's not my objective to
22 make you repeat yourself.

23 I don't recall that the
24 testimony yesterday had to do with

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1 discussions between you and
2 Mr. Harris about differences between
3 the drafts, I recall it being just
4 your testimony about the difference
5 or differences and what the story was
6 behind them.

7 But the answer you just
8 gave included a description of what
9 you said to Mr. Harris. Do you
10 recall anything that Mr. Harris said
11 to you during that discussion?

12 A. Only agreeing with me that
13 that's how that developed. I don't
14 recall anything else, no.

15 Q. Another document marked
16 yesterday as an exhibit is Vandeven-
17 11. I will hand it to you.

18 It's an e-mail with what
19 appears to be a PDF icon beneath the
20 text of the e-mail or narrative words
21 of the e-mail with a reference to
22 Ashland comments. Do you recall
23 that?

24 A. Do I recall the testimony



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1 yesterday?

2 Q. The document. Do you
3 recall seeing the document yesterday?

4 A. This exhibit?

5 Q. Yes. This exhibit.

6 A. Yes. Sorry.

7 Q. And I think there was some
8 question-and-answer testimony about
9 what comments that icon might refer
10 to, whether you recalled having the
11 document still, et cetera.

12 My question is, did you do
13 a review of individual companies or
14 documents associated with individual
15 companies other than Ashland?

16 MR. HARRIS: Objection to
17 the form.

18 THE WITNESS: Well --

19 BY MR. COOLEY:

20 Q. Well, let me -- strike that
21 question.

22 And, again, I don't want to
23 recover ground, I just want to make
24 sure I have the foundation here



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1 right.

2 I think yesterday you said
3 you or your firm did some review of
4 some documents relating to Ashland
5 and prepared some comments concerning
6 them. Is that correct or am I
7 mistaken in that recollection?

8 A. I don't know if you are
9 mistaken or not. I can -- I don't
10 know if this is responsive, but I
11 will start and you tell me if it's
12 not.

13 The reason that this is
14 called Ashland is this -- the first
15 expert report that I received was the
16 expert report that had three authors,
17 which was unusual.

18 I usually don't get expert
19 reports that have three authors, as
20 opposed to some of the other expert
21 reports from, say, Dr. Brown or
22 Dr. Mink that were from individuals.

23 And I would have referred
24 to those as Brown or Mink, this was



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1 from three individuals so I referred
2 to it as Ashland.

3 So Ashland refers to that
4 expert report, it doesn't refer to an
5 Ashland document in any way, it just
6 refers to the expert report from the
7 three individuals that were retained
8 by Ashland.

9 Q. May I see the exhibit
10 again? Thank you.

11 Well, Exhibit 11, Vandeven-
12 11 states Attachments: Ashland
13 comments dot doc.

14 Is the answer that you just
15 gave your way of telling me that you
16 understand the document, and it's
17 actually a Word icon here, the
18 document that -- an icon for which
19 appears on this e-mail to be the
20 expert report of these three
21 individuals as opposed to some
22 comments on it?

23 A. No. It refers to my
24 initial comments of my review of that



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1 expert report.

2 Q. Okay, all right. That's
3 helpful. Thank you.

4 Now, did you perform a
5 review of any other expert reports
6 that you received in this matter
7 other than the Ashland report
8 authored by the three experts?

9 A. I did, and those are
10 outlined in my rebuttal report.

11 Q. Did you prepare some
12 comment document or documents
13 pertaining to any other expert's
14 report?

15 A. I don't recall putting
16 together a report or formal review
17 like that for any of the other
18 experts.

19 Q. But you recall putting
20 together some document, comment
21 document. Tell me if that's a fair
22 description, pertaining to Ashland.

23 A. Yes, I do.

24 Q. It's just a question of



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1 whether you still have it or --

2 A. Correct.

3 Q. There was some question-
4 and-answer yesterday regarding pH and
5 pH ranges, zero at one end, do I
6 recall correctly, 13 or 14 at the
7 other?

8 A. 14 at the high end, yes.

9 Q. 14, right.

10 A. 14 at the other end.

11 Q. And I believe you testified
12 that neutral was 7.0?

13 A. That would be considered
14 neutral pH, yes.

15 Q. Considered by whom?

16 A. Considered by chemists.
17 That's generally referred to as a
18 neutral pH.

19 Q. Is there a range that's
20 generally considered to be a neutral
21 range that spans 7.0 on one side or
22 both?

23 A. Depending on what the
24 circumstance is or what the



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1 application of the pH measurement is
2 there may be a range of pHs that are
3 considered -- I'm sorry, that are
4 considered neutral for that
5 particular situation.

6 For instance, rainwater,
7 individuals, regulators for instance
8 that are -- or scientists that are
9 concerned about acid rain may
10 consider neutral rainwater a range
11 from, say, 6 and a half to 7 and a
12 half and not a precise number of 7,
13 but it depends on the situation.

14 Q. Are you using 6 and a half
15 to 7 and a half with precision in
16 referring to the subject of acid
17 rain, or are you just using those
18 numbers in a general exemplary way?

19 A. I'm using them as the
20 latter, an illustrative example.

21 Q. What is the range of pH in
22 acid rain experienced in, say, the
23 northeast in this country over the
24 past decades. Do you know?



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1 A. No.

2 Q. Have you ever studied acid
3 rain as a subject matter?

4 A. Not professionally. Only
5 academically in school.

6 Q. What do you recall from
7 your study of it academically?

8 A. That it's bad.

9 Q. Do you have any knowledge
10 as to the range of pH associated with
11 acid, what's called acid rain,
12 referred to as acid rain?

13 A. No.

14 Q. Do you have any knowledge
15 as to the pH of rain in the greater
16 area of the Boarhead Farms site
17 during the 1960s and '70s?

18 A. No.

19 Q. Is it possible that the pH
20 of rain regularly occurring at the
21 Boarhead Farms site during the, let's
22 say, late '60s through 1970s was
23 lower, i.e. more acidic than some of
24 the liquid wastes disposed of at the



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1 site?

2 MR. HARRIS: Objection to
3 the form.

4 THE WITNESS: Sure, it's
5 possible.

6 If for no other reason as
7 we discussed yesterday, the pH of
8 some of the wastes could have been
9 corrosive because they were basic at
10 a high pH, therefore the rainwater
11 could have been more acidic than
12 those wastes.

13 BY MR. COOLEY:

14 Q. What about so-called acid
15 wastes as you have read of such
16 wastes in your review of the
17 administrative record and materials
18 received from Dr. Exner, could the
19 rainfall at the Boarhead Farms site
20 have been more acidic than some of
21 those so-called acid wastes?

22 A. Well, anything is possible,
23 but I would certainly doubt that.

24 Q. When you have both read and



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1 written and in the last two days
2 testified as to "acid wastes," have
3 you had a singular understanding as
4 to what the meaning of that term is
5 in each of those three contexts,
6 things you have read, things you have
7 written, things you have testified
8 to?

9 A. Well, again, without having
10 any precise pH measurement associated
11 with a particular waste, if EPA or
12 contractors by the EPA or the
13 Pennsylvania Department of
14 Environmental Control or any other
15 regulatory agency or environmental
16 entity, if they describe something as
17 acidic waste to a professional in
18 this industry, that means that it is
19 a material that is going to have an
20 effect on other materials because of
21 its acidity, even though they don't
22 have a precise pH measurement
23 associated with it.

24 So that's my general



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1 understanding or how I viewed that
2 term acid waste that was described in
3 the underlying record.

4 That's why, for instance, I
5 wanted to go back and see in
6 Dr. Exner's documents if there was
7 any other information that would go
8 beyond that.

9 So if there was information
10 about it being sulfuric acid or
11 hydrochloric acid or nitric acid,
12 that gave me more information about
13 what kind of acid it was.

14 Q. Now, the answer you just
15 gave I understood to address
16 principally your understanding of the
17 general intended meaning of the term
18 acid waste as you read it in
19 documents contained within the
20 administrative record.

21 What about when you have
22 used the term acid wastes in your
23 expert reports, what did you mean by
24 it? Generally the same thing?



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1 A. Yes.

2 Q. And in your testimony
3 yesterday and today, likewise when
4 you have used that expression you
5 have meant generally the same thing?

6 A. Correct.

7 Q. And so since we have a
8 commonality in all three contexts, we
9 will treat them as one, and my
10 question would be, what range of pH
11 do you consider is applicable to this
12 concept of acid waste as you just
13 described it a couple of answers ago?

14 A. I haven't associated a
15 particular pH range with it.

16 Q. Can you do that?

17 A. Nothing more than saying
18 it's below -- it's below 7. It would
19 be below 7.

20 Q. So if a liquid material was
21 6.95, would you expect EPA to
22 describe that liquid material as an
23 acid waste?

24 A. No.



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1 Q. Neither would I. So I'm
2 just trying to understand whether
3 there are any numerical pH bounds
4 that you would think would be
5 appropriate to assign to what has
6 been described by others and yourself
7 as acid wastes?

8 A. No. I can't say anything
9 more than I have, that the only --
10 EPA did not feel that it was
11 necessary to describe a bound,
12 therefore there's no bound provided
13 in the underlying record.

14 If all you are doing is
15 asking me the academic question,
16 what's the range of pH measurements
17 that would be considered acidic, any
18 high school chemistry book is going
19 to say below 7.

20 Q. Well, I'm not asking you an
21 academic question, I'm asking you
22 something very different, which is in
23 the documents in the administrative
24 record and now in your two expert



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1 reports and then further in your
2 testimony there's been a common use
3 of the express acid wastes or similar
4 waste-containing acids, variants of
5 the theme, and I'm trying to
6 understand whether you believe
7 there's some range of pH that's fair
8 to associate with that descriptive
9 term.

10 MR. HARRIS: Objection.

11 Asked and answered.

12 THE WITNESS: No, there's
13 not.

14 BY MR. COOLEY:

15 Q. You said a few minutes ago
16 that acid rain was one example of --
17 I don't want to put words in your
18 mouth, so I'm trying to be careful,
19 but I'm having a tough time recalling
20 exactly what you said.

21 The discussion we were
22 having concerned neutrality and
23 whether neutral meant 7.0 or perhaps
24 some range on one side or both of



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1 7.0. It was in the context of that
2 discussion that you mentioned acid
3 rain, as an example.

4 So my question now is, from
5 your experience with site
6 investigation remediation matters and
7 environmental regulation over some 20
8 years, are you aware of any other
9 context in which neutral is defined
10 by some range of pH rather than the
11 specific number 7.0?

12 A. No, I'm not.

13 Q. Are you aware of any
14 context within site investigation,
15 remediation or environmental
16 regulation generally where a pH of
17 less than 7 is an acceptable
18 criterion for some purpose?

19 A. I don't understand that
20 question.

21 Q. Take for example discharge
22 limits under wastewater discharge
23 permitting programs and permits, do
24 you have any familiarity with what pH



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1 values are acceptable for discharge
2 criteria?

3 A. That would be facility-
4 specific, receiving-water specific,
5 permit-specific.

6 Q. Do you have any experience
7 or familiarity with wastewater
8 discharge permitting?

9 A. Yes.

10 Q. Are you aware of any
11 discharge programs, and by that I
12 mean regulatory programs or specific
13 permits for specific facilities, so
14 I'm going from broad to narrow, in
15 which a pH below 7 was permissible?

16 A. Not specifically sitting
17 here right now, no.

18 Q. Yesterday I believe you
19 testified that you considered the
20 acidity of Ashland acids to be
21 strong, or you referred to them,
22 categorized them as strong acids. Do
23 you recall saying that? Do I have
24 that correct?



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1 A. I recall saying that the
2 information that I found in
3 Dr. Exner's documents indicated that
4 they were acids, such as
5 hydrochloric, sulfuric acids, that I
6 would consider strong acids.

7 Q. So my question is, would
8 you please define strong or tell me
9 as specifically as you can what you
10 mean by strong when you use that as
11 an adjective with acids?

12 A. Okay. Well, different
13 acids have different characteristics,
14 they are different strengths.

15 And I think we talked a
16 little bit yesterday about you could
17 have anywhere from a very weak acid,
18 say citric acid, acidic acid, that
19 are generally weak acids, they don't
20 give up their hydrogen ion
21 concentration very readily, versus
22 acids that are very strong acids,
23 such as sulfuric acid, hydrochloric
24 acid, nitric acid.

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1 So that's what I was
2 referring to as a strong acid versus
3 a weaker acid.

4 Q. I think your answer just
5 told me that by strong you mean not
6 weak, and you have identified certain
7 specific kinds of acids that you
8 would associate with the word strong
9 or include it under the heading
10 strong acids --

11 A. Right.

12 Q. -- and the only thing that
13 I took away from your answer to help
14 me drill down and understand a little
15 more specifically what you mean by
16 strong or weak was the degree to
17 which an acid gives up its ions.

18 A. How it affects -- pH,
19 again, is the hydrogen ion
20 concentration, so how it affects that
21 hydrogen ion concentration determines
22 whether or not it is a strong acid or
23 a weak acid.

24 Q. How what affects that



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1 hydrogen ion concentration?

2 A. How the acid does.

3 Q. How the acid affects the
4 hydrogen ion concentration of
5 something else when exposed to
6 something else?

7 A. Yes.

8 Q. So it's not the hydrogen
9 ion concentration of the acid itself,
10 it's the hydrogen ion concentration
11 of the substance to which the acid is
12 exposed?

13 A. Correct.

14 Q. And is there some value or
15 set of values that are assigned to
16 acids to quantify strength of acid?

17 A. It's generally referred to
18 as the normality of the acid.

19 Q. And what does that mean?

20 A. I couldn't tell you the
21 exact definition of normality, but
22 that's the parameter, that's the
23 measurement of an acid that describes
24 how strong it is.



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1 Q. Is that stated in some kind
2 of unit?

3 A. It's usually stated as a --
4 it's stated as -- it's referred to as
5 normal.

6 So it would be the sulfuric
7 acid is 2 normal sulfuric acid. So
8 that in and of -- that word normality
9 or normal is the unit that's used to
10 describe the strength of an acid.

11 Q. And when you say 2 normal,
12 does that mean one might see 3 normal
13 or 4 normal?

14 A. The range that that goes up
15 to I'm not sure, but, yes, in general
16 the larger the number the stronger it
17 is.

18 Q. Does the number get
19 negative? And this is a different
20 question than negative pH, but rather
21 the normal number.

22 A. I don't recall if it does
23 or not. That's a very kind of very
24 narrow chemistry issue that I don't



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DEPOSITION OF JAY VANDEVEN, VOLUME II, 2/14/07

1 know if the normality of an acid can
2 be a negative number.

3 Q. Okay. When we discuss a
4 given acid, say sulfuric acid, in
5 common understanding when one says
6 sulfuric acid, does that connote a
7 specific normality?

8 A. Not necessarily, no.

9 It could connote a specific
10 normality if it's -- in general you
11 are not going to find that the
12 normality of an acid discussed,
13 except if you are in a lab doing
14 basic chemistry work, in most
15 descriptions of acid you are going to
16 find it described as concentrated or
17 weak, a lot more qualitative in
18 general.

19 So you may see concentrated
20 sulfuric acid versus weak sulfuric
21 acid.

22 Q. But those word labels could
23 in concept be translated into some
24 normality value. Is my understanding



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1 correct as to what you mean?

2 A. That's correct, yes.

3 Q. So if my understanding is
4 further correct, sulfuric acid isn't,
5 per se, of a given strength, there
6 may be a weaker sulfuric acid and a
7 stronger sulfuric acid.

8 A. That is correct.

9 Q. Is it also the case that if
10 an acid is used in some way, exposed
11 to some other substance or material
12 and becomes either used or partially
13 used or spent or partially spent that
14 its strength is affected as a result
15 of that use or exposure?

16 A. Yes. If you -- as we
17 talked about before, if you mix it
18 with a liquid that's a higher pH, for
19 instance water, the pH of the mixture
20 will be greater than the original
21 acid and less than the original
22 water.

23 Q. So strength, then, and
24 please correct me if I'm wrong, I'm



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DEPOSITION OF JAY VANDEVEN, VOLUME II, 2/14/07

1 trying to understand it, strength is
2 directly related to or effectively
3 the same as its concentration or
4 dilution, the more diluted the
5 weaker, the less diluted the more
6 concentrated thus stronger.

7 Or is that not correct?

8 A. That is correct.

9 Q. And there is also a like
10 correlation between pH and strength,
11 the lower the pH, as in closer to 0
12 and less close to 7, so in that sense
13 the lower the pH the stronger the
14 acid, the higher the pH the weaker
15 the acid?

16 A. That's correct.

17 Q. And so if we see a
18 reference in a document in the
19 administrative record, let's say, and
20 I don't have one in mind, I'm just
21 generally trying to give you some
22 context and there's a reference to
23 sulfuric acid waste.

24 By that wording alone you



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DEPOSITION OF JAY VANDEVEN, VOLUME II, 2/14/07

1 can't really say how strong or weak
2 it is, can you?

3 A. You can say how strong
4 sulfuric -- how strong the acid is,
5 it's a sulfuric acid, which is a
6 strong acid, you can't tell how
7 strong that particular sulfuric acid
8 is.

9 Q. Or that particular sulfuric
10 acid waste, if that's what is being
11 described?

12 A. That is correct.

13 Q. I mean, the waste might be
14 a dilute material or a concentrated
15 material, unless that's called out or
16 spelled out in some specificity to
17 help the reader understand more
18 precisely what's being described, you
19 don't know. Is that fair?

20 A. I think it's fair to say
21 that unless the pH is described, you
22 don't know exactly what the pH is of
23 that waste, that's correct.

24 Q. You don't know exactly what



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DEPOSITION OF JAY VANDEVEN, VOLUME II, 2/14/07

1 it is, in fact you don't know whether
2 it is 6.95 or 1.0, do you?

3 MR. HARRIS: Objection to
4 the form.

5 THE WITNESS: Well, again,
6 I think you are discussing a
7 hypothetical situation that in my
8 experience that just really has no --
9 it doesn't really apply to situations
10 like this.

11 If EPA is investigating a
12 site that has the characteristics of
13 the Boarhead Farms site where they
14 had information about past disposals,
15 they had information about
16 Mr. DeRewal's other operations, they
17 had information about the kinds of
18 industries that he was servicing, if
19 you will, and the types of wastes
20 that were alleged to be disposed of
21 at the site, if they are calling
22 something an acid waste or if they
23 are talking about spills of sulfuric
24 acid, is it theoretically possible



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